Growing Up Healthy in the Red River Valley: Reducing Children’s Exposure to Pesticides

Final Report – November 2010

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**Project Goals and Objectives**

**Our goals** for the implementation phase of the project came from the interaction with mothers and care givers who participated in the Photovoice© planning processing. The three statements below describe the strategies and objectives for each of the three activities included in the implementation plan.

**Use the Photovoice© exhibit to engage community members** in dialog to explore the issue of pesticide exposure, especially exposure of young children, and consider ways in which the community can respond.

**Provide training to raise awareness and provide knowledge base** to public health workers so they have the capacity to share important and useful messages with mothers and caretakers.

**Increase access to locally grown pesticide-free foods** in the region by supporting backyard and community gardens, CSA’s and farmers markets.

Each of these interventions takes a broad systems-level approach and also invites personal behavior change to reduce children’s exposure to pesticides.
A. Major Accomplishments and Impacts

Photovoice© Exhibit and Forums

The Photovoice© exhibit was on display, and a community dialog held in each of the locations listed below. In each case, the exhibit was on display for at least three weeks, and postcard invitations for the forum were sent to community members and groups. A survey was provided at the exhibit inviting viewers to indicate to what extent how the exhibit increase their awareness and provide comment.

Atomic Coffee, Fargo ND in September 2008
NDSU art studio fall, Fargo, ND in November 2008
Mount Saint Benedict, Crookston, MN in January 2009
University of Minnesota Crookston, MN in February 2009
Hjemkompst Center, Moorhead in August 2010
Developed online exhibit – http://redriverkids.blogspot.com/

The responses to the survey illuminate two general perspectives of viewers.

First, many viewers were presented with compelling stories from mothers about their concerns that stirred an interest in preventing exposure and harm to children. These viewers commented on the need for precaution such as prior notice as well as natural remedies like organic controls and predators.

“Spraying in a field too close to a school was terrible – educate the public – encourage organic farming or organic gardening – spraying with airplanes really spreads the pesticides to neighboring farms & gardens.”

In the summer of 2009 a CSA was started near Hallock by two young brothers, Caleb age 12 and Andrew Christenson, age 10. Their mom had been a member of a CSA in Crookston with some others from Kittson County. The idea to join the CSA in Crookston came at the Photovoice© training in Hallock. Kristin Eggerling mentioned the CSA and a number of the participants expressed an interest in joining. Later others were invited to join too and one of them was Caleb and Andrew's mom.

For a few summers the group had to take turns driving to Crookston, which is approximately a 140 mile drive round trip, every week to pick up their share. When the boys heard how much money that the members had paid, they decided that they would like to give it a try. Neither had had a garden before but that didn’t seem to intimidate them at all. The family has a strawberry u-pick farm so they were not strangers to growing things and the manual labor involved with it.

They wanted to start out small to see what they could handle and it has been a huge success. The weekly bounty has been very impressive. Whether it be the perfect green bell peppers or the purple beans, the herbs or the sweetest cherry tomatoes, each item pulled out of the basket is like gold. And, the boys have truly enjoyed the process and continued it again this past summer and they have no plans to stop.

This has been a win-win for everyone involved – a learning experience for the boys, an opportunity for them to make money and a chance for some lucky Kittson County residents to score some excellent local and organic produce week after week during the summer and fall.
Second, another group of viewers who use pesticides or are sympathetic to those that use pesticides were much less concerned about exposure, both before and after viewing the exhibit.

Comments from this second group diminish the value of the photographers’ experience and story. “One or two people that are applying chemicals do not accurately represent everyone... this is being blown out of proportion.” This group generally takes the perspective that use of pesticides is a necessary practice and it is up to those in the way to protect themselves.

“First of all, nobody is out there spraying chemicals directly onto anyone. The lady that got out of her vehicle to take a picture of the airplane was not using common sense. If a field is being sprayed, help out by staying AWAY! You want food on your tables? Fields need to be sprayed to keep it that way. Parents must take responsibility too, by not allowing their children to walk into areas that are being sprayed or have already been sprayed. Commercial applicators are already regulated and held to very strict standards. It’s the general public who are putting themselves at risk of chemicals just because they want to take pictures or don’t have enough common sense to stay far enough away. If the parents are not smart enough to educate the kids, then implement it in a school program to educate them. But use some common sense!”

A Different Perspective

Certified agriculture pesticide applicators viewed a narrated slide show of the Photovoice project including photos and stories of the mothers involved. These professional applicators with extensive experience handling pesticides and professional credentials to handle pesticides safely had a much different perspective and reaction to the presentation than the public health audiences who also heard the presentation. Dean Herzfeld, UM Extension Educator who runs the pesticide education programs, reflects on the common reaction of farmers viewing the presentation. “These guys noted that the women were asked about their perception about the risk of exposure, and they asked “what is the real risk?” That is a hard question to answer, and it lead to a discussion about the seven Universal Precautions for Pesticides developed by Bruce Bromier, especially this one:

Practice #6: Control dispersion of pesticides and avoid exposing children and pregnant women. Store pesticides in dry, secure containers in areas that are not accessible to children. Follow recommended disposal and clean-up procedures. Do not burn pesticide containers. Be watchful about pesticide drift caused by wind or other environmental factors. And always be aware that children and pregnant women are at greater risk of harm from low-dose pesticide exposures than others in the population.

Universal Precautions are designed to communicate that all pesticides are designed to kill living things and need to be handled carefully. These practices are a simple set of instruction that apply to all pesticides, and help to reduce exposure.
Clearly, the attitude a viewer holds prior to seeing the exhibit influences his/her reaction to the photos. It’s important to recognize these existing attitudes and perspectives as we consider ways to change perspectives. Dean Herzfeld tried an experiment of showing a presentation about the Photovoice© project in the certification course for pesticide applicators in 2009. He noted the need to develop a presentation specifically for this audience, recognizing that content of the education has to be presented in a package that works for the intended audience.

In addition to the exhibits, project partners made presentations about the Photovoice© method and its application to this issue at the events listed below. In every case, interested health care professionals and leaders appreciated the honesty of the women’s stories. They said that learning about the Photovoice© methodology and seeing the photos along with the process discussion about effective empowerment through ‘Photovoice©’ was of value to them. In Des Moines, one of the participants said that it was “shocking to see the photos documenting children and pesticides in the same frame.”

Minnesota Rural Health Association via cyber-conference in February 2008
U of M Public Engagement Day in Minneapolis in April 2008
Minnesota Department of Health Northwest District Child and Maternal Public Health Nurses in Bemidji, MN in May 2008
Dieticians in Northwest Minnesota in Bemidji, MN in September 2008
National Health Disparities Conference in Prior Lake, MN in November 2008
BCBS Convening in Minneapolis in November 2008
Community Food Security Conference in Des Moines, IA in October 2009
Photovoice© presentation included in pesticide applicators training by UM Extension

Several additional products have been developed from the photos. Ruth Rasmusen used several photos in developing the curriculum training activity, especially in the handouts to be shared by WIC or public health nurses. More recently, Abby Gold has developed ‘affective message’ handouts for Extension Nutrition Education Assistants. Affective or emotion-based messages are modeled on Pam McCarthy’s “Touching Hearts, Touching Minds” project for WIC in Massachusetts.


Each key topic has two components. The first component is a counseling script with a discussion format known as “Open, Dig, Connect, and Act.” Each counseling script is accompanied by a handout that features on one side a picture with a message and on the other side a story or testimonial. The graphics for the handouts will come mainly from photos taken from the Photovoice© activity in the Growing Up Healthy in the Red River Valley project. Some of the testimonials will also come from the stories that accompany the photographs.
**Curriculum development and trainings**

Throughout the grant period of November 2007 through October 2010, a training curriculum was developed, piloted, revised and implemented as a multi-format learning opportunity for a **total of 205** public health nurses and community health educators including family health mentors and nutrition education assistants and other interested health care professionals throughout the Red River Valley and extending statewide.

A 2.5 hour train-the-trainer curriculum incorporated existing elements essential to the content focus of reducing children’s exposure to pesticides from two successful initiatives – the Pediatric Environmental Health Toolkit from the Physicians for Social Responsibility and environmental health nursing competencies, pesticide practice skills, and environmental health history guidelines from the National Environmental Education Foundation. Local resources for intervention strategies from the Minnesota Department of Agriculture and new materials including take home fact sheets and powerpoint presentations for teaching purposes were developed from the Photovoice© research planning grant project completed the curriculum. The train-the-trainer curriculum incorporated evidence based scientific background and health effects knowledge with a medical practice perspective.

A second and shorter (30-45 minute) curriculum was also developed for use with small groups focusing primarily on the four intervention strategies to reduce children’s exposure to pesticides on food, in the home and outdoors, on pets, and on children themselves. The shorter curriculum included the take home fact sheets and a smaller powerpoint presentation for teaching purposes. Both curricula also showcased a toolkit of examples of non-toxic, pesticide free alternatives to chemical control of pest infestations, such as flyswatters, mouse traps, and fly strips.

**A Public Health Nurse Training**

At the pilot training in July 2008, NW MN area public health nurses who supervise area WIC clinics were trained. One of the staff that one of those nurses trained used the materials as part of their monthly displays for all WIC participants during February, March and April of 2009 at 10 different sites each month.

A nurse parent who attended the late April 2009 train-the-trainer said that she had attended a community event held concurrently with one of the WIC clinics where the materials were displayed and the WIC worker told her that the materials came from our training the previous year.
Throughout the grant period six train-the-trainer workshops were delivered to 64 nursing practitioners in multiple locations across the state in face-to-face and interactive television formats with each participant receiving the binder of resource materials developed for use with staff and family groups. Communities represented by the participants include Hallock, Baudette, Bemidji, Bagley, Crookston, Detroit Lakes, Park Rapids, Thief River Falls, and Warren, Minnesota. On a six being high point scale, the training objectives at the six nursing workshops were evaluated by those participants as having been met as follows:

- Identify environmental pesticide exposure sources relevant to Red River Valley communities: Average response 5.38
- Recognize the relationship between pesticide exposure and potential health effects in children: Average response 5.43
- Articulate individual family and community strategies for the prevention of pesticide exposure: Average response 5.33
- Overall, I was very satisfied with this learning activity: Average response 5.67

Six modified (30-45 minute) workshops were delivered to 106 community health educators in multiple locations in face-to-face and webinar formats with materials available online to participants. Two presentations incorporating the take home fact sheets as intervention strategies were delivered to 35 interested health care professionals also in face-to-face and webinar formats with materials available online to participants.

Anecdotal comments from participants on the workshop evaluation forms included “I’m excited to see how the multiplier effect can get this information into the hands of many people over the next couple years. I especially like the crisp, concise messages for families”, “the ready-to-use toolkit makes going back to our own communities with this education so much easier”, and “I was amazed to find out the number of chemicals found in newborn blood!”

Anecdotes of Adaptability and Usability

At the Fargo training for family health mentors, one of the participants who is pursuing further education indicated that she planned to use the materials as part of a required classroom presentation on a community issue.

At one of the two Rochester trainings, another participant also indicated that she planned to use the workshop materials as part of a required classroom presentation in one of her nursing education courses.

These anecdotes attest to the adaptability and usability of the materials as well as the participant engagement in the content and desire to share new knowledge with her community.

A Breakfast Scene in Moorhead
Making Pesticide-Free Food More Available

One of the most common low-dose exposure routes for children is through the food they eat. Reducing exposure from this source means that healthy foods need to be accessible and affordable and further, the family has to be familiar with eating fresh fruits and vegetables, and using whole foods in cooking. For many families, this involves learning or re-learning many basic skills in producing food, finding and purchasing from farmers and markets, and cooking.

These skills empower families to provide themselves with healthy food, and provide a sense that they are capable and in control of this important part of healthy living. Suna, one of the community garden participants in Moorhead sums it up with her statement, “When I’m in the garden, the earth is in my hands.”

Through the Growing up Healthy in the Red River Valley project, we’ve supported community gardening projects and mentoring efforts as listed below:

Hosted and supported a community garden with Immigrant Development Center in Moorhead. In 2008, Extension supported an intern to organize gardening days and transportation.

Supported NDSU students in Landscape Architecture to design raised garden beds and develop a site plan for Probstfield Foundation Living History Farm in Moorhead in 2009. Presentation is archived at: https://netfiles.umn.edu/users/kinge002/www/HGE_2010_20presentations/Probstfield%20Organic%20Community%20Garden.pdf

Redesign and improve the www.localfoods.umn.edu website. Redesign includes a “Find” section for finding farms and food producers, a “Learn” section to house information and a “Connect” section for increasing the connections among local food advocates.

Supported mentoring programs through the White Earth Tribal and Community College in 2009 and through Anishinaabe Center in, 2010. Please refer to the lovely photos and stories online at this url: http://anishinaabecalendar.org/?page_id=290

A Family Story
by Jim Stordahl, Extension Educator—Polk and Clearwater Counties

The Lambright family moved to northwest Minnesota two years ago to join a new 10-family Amish settlement near Fertile, MN. Edwin first contacted me prior to their move seeking assistance in purchasing land suitable for beginning a dairy and vegetable farm.

Soon after their arrival, I worked with them on various projects including their assumption of a CSA that had been started by the Benedictine Sisters at Mount St. Benedict near Crookston. No longer able to operate the CSA, the nuns sought to find a farmer with similar values in producing organic produce for their budding CSA. Edwin and Edna, with help from their 14 children, accepted the challenge and expanded it to serve several other communities in northwest Minnesota.

In addition to the CSA, they also began to provide fresh, organic produce to a handful of area grocers. They ended the year with nearly 100 CSA members and several new vendors in place for 2011. Our role has been to help facilitate and expand development of the CSA, provide technical production and post-harvest handling assistance in vegetable production, and organize meetings with further vendors. This single family now provides pesticide-free produce to over 100 families (not including what’s sold in stores) vastly increasing the availability of organic food options.

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In 2010, the NW RSDP began its Organic gardening/farming mentor program with Extension by supporting Jim Stordahl to spend 1 day per week.

His activities and accomplishments are listed below:

**Hosting and Convening Role:**
- Plan/host Farm to Cafeteria Workshop in McIntosh, March 2010.

**Direct Support to Farmers:**
- Facilitate market development between area grocers and area farmers to enable producers to scale-up their production to provide greater amounts of local foods including new CSAs in the region.
- Participated in SARE Scaling Up Training in Madison, WI in October 2010.
- Farmer’s Markets: Three years ago, there was one market along the US Hwy 2 corridor, today there are vibrant farmers markets in Crookston, Mentor, Fosston, Bagley, and two in Bemidji. Three of these began in 2010. Jim provides technical support primarily to the producer/vendors. Interest in local food is lively and growing.
- Collaborating with McIntosh Country Store to provide temporary cold storage of area produce. This will enable local Amish farmers to have a central collection point ready for distribution to local retailers. Once Harmony Food Coop completes their expansion next April, the goal is to become part of their distribution system.

**Outreach and Education Role**
- Provides weekly articles for 13 newspapers in northwest Minnesota (one paper in western Montana). About once each month, he provides an article with a focus on healthy food, organic or small farms. Each article is further leveraged on a weekly radio program with a local station that claims 7000 listeners during that time slot.
- Bus tour at Lambright Family Farm CSA, organized by Noreen Thomas. The goal of this tour was to introduce the CSA model to 40+ potential new clients from the F-M area while providing an opportunity to learn about the Amish culture.
- Regular presenter at area The Weston Price, “Nourishing Traditions”Chapter meetings each month. The focus is healthy foods.
- Presented Benefits of Local Foods at Farmer’s Market in Mentor.

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**A Family Story**
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The Lambright’s are just one of the families offering these products and serve as a wonderful model to the other 20+ Amish families new to the region. In 2010, four other families began marketing similar products with hopes of building the availability of these food products in the coming years. The Lambright’s, as well as several other Amish families, have expressed their amazement at the productivity and potential of this area to produce dairy products and market garden crops. More families are arriving each year, all with hopes of emulating the success of the Lambright family. This is just the beginning.
Several activities sponsored by the NW RSDP support this goal and leverage other resources and partners to increase the production and use of local, healthy foods.

- Farm–to-Cafeteria workshop in McIntosh, March 2010
- Collaboration with SHIP in NW, Tribal and North Country Clusters regarding community and school interventions
- Organic Fruit and berry research in high tunnel at Schulstad farm established 2010
- NW RSDP is seeking project ideas from SHIP – Ag Education – FFA for projects that support fresh, sustainably grown produce to schools
- Farmers Markets supported by NW RSDP – Mentor, Crookston, Red Lake, Bagley, Baudette

**FFA and Local Foods**

One important institution that has yet to be engaged in producing and creating greater access to healthy, local foods is FFA. FFA is an important source of experience and education for the next generation of farmers. One area of leverage for change is to work with FFA chapters individually and through their statewide meetings, to create the curriculum and needed support for FFA to produce healthy local foods and then, ideally, supply that needed produce to their school districts.

Minnesota has agricultural educators and FFA chapters located throughout the State, in both urban and rural areas. In NW Minnesota many schools have agriculture education programs and FFA teams, and most have had limited emphasis on local food production or Farm-to-School. We seek pilot planning, implementation and curriculum development projects that engage this group of student leaders in producing local foods and advancing Farm to School with their associated school food services. The Regional Partnerships have found that there is a need to increase the number of farmers engaged in local food production. By engaging the FFA we seek to establish produce production as a viable farming interest for young and beginning farmers in the Midwest.

Minnesota is making a significant investment in addressing chronic disease through its State Healthy Improvement Program (SHIP). Many SHIP clusters have chosen a nutrition intervention for their work with schools, igniting interest in school gardens and Farm to School programming. Working with FFA would bring another group of student stakeholders to the table. FFA has not previously worked with local food production or Farm to School. We will also evaluate whether increased interest and attention to this production increases consumption of more fresh produce.
One of the ways of sustaining the work of making pesticide-free food more available is to work with Extension EFANS to strengthen its Food Systems Initiative and specifically to increase the Small Farms program presence in northwestern Minnesota.

Additionally, NW RSDP will continue to support Farmers Markets, provide learning opportunities for CSA’s and home gardeners and strengthen farm to school and “farmer to school” programming.

Two guideposts provide direction for support to these activities: the precautionary principle and the compelling vision of “one health.” One Health defines the linkages across environmental, human and animal health, while the precautionary principle informs the role that public health professionals, extension educators and decision makers at school, community and county government can play as they strive to provide healthy food and environments for children.

A Garden Mentor

I’m a garden mentor, and I chose a family (mom and three young kids) in Waubun as my mentee family.

As a garden mentor, I brought my mentee family raised bed supplies. Starter plants were provided by the Anishinaabe Center. While my husband helped build the garden bed, the Waubun mom and I loaded up free dirt from a neighbor to fill the bed.

The Waubun family was given some heirloom tomatoes starter plants and zucchini plants from Anishinaabe Centers greenhouse and some Bantom Corn seed from Herman’s seeds.

We talked about what square foot gardening is and how to go about it. Waubun mom was also given some planning garden grid sheets for her to map out her garden and some info on companion planting.

We all did a lot of hard work but had fun. We learned that her kids love pickles, while she loves chard. She hopes to build another box when she gets the hang of it for 2011.

At the end of the growing season when I met with the family and asked if she needed help with the new box she said, “Nope, thank you, but you taught us very well, the kids are excited to build the new box and grow food they like!”
# B. Project Reach and Influence

The Blue Cross and Blue Shield of Minnesota Foundation board has become particularly interested in the “reach” of the GUH projects. Please select which major activities your project has offered and then provide your best estimate of the different people influenced or served.

<table>
<thead>
<tr>
<th>Major Activities focused on reaching and/or influencing people:</th>
<th>Estimated number of different people influenced or served to date:</th>
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</thead>
<tbody>
<tr>
<td>Screening of Unnatural Causes</td>
<td>MSUM students – 120</td>
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<tr>
<td>Photovoice© Exhibits and Community Forums</td>
<td>Five exhibit locations, estimate 500 viewers, 100 community forum participants.</td>
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<tr>
<td>Photovoice presentations</td>
<td>300 participants learned about Photovoice as a method and about the perceptions and concerns of three groups of women in our Photovoice planning groups.</td>
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<tr>
<td>Participant training</td>
<td>Provided training to a total of <strong>205 participants</strong> from July 25, 2008 through September 30, 2010.</td>
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<tr>
<td></td>
<td>Trained 25 individual Nutrition Education Assistants (NEA’s) and 32 persons who supervise NEA’s - by supervisor report, each of these NEA’s potentially reach more than 500 individuals during Fall and Spring months at schools, senior centers, food shelves, WIC clinics, and other adult education group activities - the potential reach of knowledge to reduce pesticide exposure to children by those 25 NEA’s in one year is <strong>over 12,500 persons</strong> around the state of Minnesota. These individuals represent family groups so the reach goes beyond the immediate recipients of their teaching and coaching.</td>
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<td></td>
<td>Provided the nurses train-the-trainer workshops to 64 individuals representing public health agencies across the state of Minnesota who by supervisor report reach approximately <strong>650 distinct families</strong> each year.</td>
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<td></td>
<td>Provided four trainings with Migrant Health Services nursing and health mentor workers (35 of the 64) - each staff person serves approximately 6 individuals per day for approximately 8 months of the year for a potential reach of <strong>over 8,400 person encounters per year</strong>.</td>
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<tr>
<td>Farm to Cafeteria Workshop</td>
<td>130 people representing farms, schools, dining services, public health, communities met in McIntosh in March to learn about farm to school program opportunities, rules and regulations, and food safety practices. At least 20 schools in northwestern Minnesota are developing farm to school programs as a result, creating opportunity for food producers and bringing local, fresh produce into the schools.</td>
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<tr>
<td>Anishinaabe Center mentoring program</td>
<td>The Stone Soupers – 26 families that have learned together to gather, grow and preserve foods each mentored another family this season, increasing access to healthy food for another 26 families. Both mentor and mentee families shared their knowledge, experience and produce with the broader community. (see report in appendix.)</td>
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Summary of changes that have occurred as a result of activities focused on serving or influencing people.

The most direct results are available from the training activity, and are summarized below.

Training outcome evaluations were conducted using a variety of methods including a training log form to be sent in by each participant, telephone interviews with individual participants, key informant interviews with supervisors of community health workers and nursing staff, online survey of those participants who voluntarily shared their email addresses with project personnel. Efforts were made to ask similar questions about the training outcomes in all evaluation attempts and responses reported in the table below reflect our best estimation of the outcomes.

Data collected from the evaluations conducted reveals that the workshops had an “eye opening” effect on many participants. Individuals expressed that they hadn’t understood the prevalence of pesticides in the environment nor the exposure mechanisms. The binders of materials, interactions with the presenters, expansion of their understanding of the ubiquitous nature of pesticides in the environment, the environmental history form, and the ready-to-use handouts were valuable for their practice. One clinic manager telephoned to particularly express that two of her staff made immediate behavior changes in their own families after the workshop. Of the 170 individuals trained in the workshops (not including the 35 interested participants at our presentations), we received participant equivalent responses from 34 individuals for a 20% response rate. Of the 34 respondents, the table below relays approximate positive response percentages.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
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<tbody>
<tr>
<td>82%</td>
<td>Have shared one or more elements of knowledge or tools learned from the workshop</td>
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<tr>
<td>35%</td>
<td>Have not shared one or more elements of knowledge or tools learning from the workshop</td>
</tr>
<tr>
<td>82%</td>
<td>Have used the knowledge gained in their practice and personal lives.</td>
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<tr>
<td>82%</td>
<td>Have shared elements of the workshop with 1-10 persons</td>
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<tr>
<td>79%</td>
<td>Believe that each persons with whom they passed on elements of the workshop in turn passed it on with 1-10 persons</td>
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<tr>
<td>79%</td>
<td>Shared knowledge or tools in one-on-one encounters with individuals</td>
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<tr>
<td>12%</td>
<td>Shared knowledge or tools with staff in small groups</td>
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<tr>
<td>6%</td>
<td>Shared knowledge or tools as part of a display at a clinic or health event</td>
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<tr>
<td>6%</td>
<td>Believe that one behavior changed regarding reducing exposure on pets</td>
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<tr>
<td>59%</td>
<td>Believe that one behavior changed regarding reducing exposure on food</td>
</tr>
<tr>
<td>53%</td>
<td>Believe that one behavior changed regarding reducing exposure at home or outdoors</td>
</tr>
<tr>
<td>56%</td>
<td>Believe that one behavior changed regarding reducing exposure on children</td>
</tr>
<tr>
<td>12%</td>
<td>Believe that two or more behaviors changed regarding reducing exposure on food</td>
</tr>
<tr>
<td>6%</td>
<td>Believe that two or more behaviors changed regarding reducing exposure on at home or outdoors</td>
</tr>
<tr>
<td>12%</td>
<td>Believe that two or more behaviors changed regarding reducing exposure on children</td>
</tr>
<tr>
<td>3%</td>
<td>Believe that two or more behaviors changed regarding reducing exposure on pets</td>
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</tbody>
</table>
## C. Innovative and Unique Project Features

List and describe innovative or unique features of project. Indicate features that are substantively different than what anyone has done in area, unique adaptation of an established best practice, replication of established best practice, and another characteristic that makes feature innovative or unique.

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>Photovoice© Exhibit featuring the photos and stories of mothers and caregivers depicting their concerns about pesticide exposure and strategies to protect their children.</td>
<td>Replication of established best practices, unique application of best practices in this region.</td>
</tr>
<tr>
<td>Train the trainer materials: including face-to-face workshop use of selected components of the Pediatric Environmental Toolkit from the Physicians for Social Responsibility and the nursing competency training materials from the National Environmental Education Foundation; unique emphasis was tailored for Migrant Health workers, NEAs and WIC staff. Innovative components include a variety of materials including magnets, CD’s, booklets, fact sheets, prescription notes, hands-on examples of best practice tools, and ready-to-use powerpoint presentations.</td>
<td>Unique (regional) and innovative adaptation and replication of best practices and materials.</td>
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<tr>
<td>Farm to School Workshops engaging farmers, school dining services and public health workers, and featuring local champions.</td>
<td>Unique adaptation of best practice – hosting regional workshops for farmers and schools together.</td>
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<tr>
<td>Organic research in high tunnels in Zone 2 including variety trials of fruits and berries in organic production system.</td>
<td>Substantively different, fruit trees in high tunnels under organic production system.</td>
</tr>
<tr>
<td>Affective Messages: Initially, nutrition educators in the Red River Valley will be trained on delivering the materials to their clients. The materials can be used in several ways 1) the scripts can used one-on-one or in group settings with WIC, SNAP recipients, 2) during health fairs, county fairs, or other venues as handouts, 3) as handouts in the schools and clinics Handouts and scripts will also be featured on-line.</td>
<td>Unique adaptation of best practice</td>
</tr>
<tr>
<td>Mentoring program delivered by Stone Soupers and Anishinaabe Center. Family to family mentoring program provided direct transfer of knowledge and experience in gather wild foods, raising garden crops and preserving foods.</td>
<td>Unique and culturally appropriate adaptation of best practice.</td>
</tr>
</tbody>
</table>
# D. Products and Deliverables

Please list print/web-based products and deliverables that the project developed and indicate the target audience or user. For each product/deliverable listed, indicate which characteristics apply:

- a. Still in development
- b. Development completed
- c. Documented so others can use it
- d. Field-tested or piloted
- e. One or more partners has plans to/is distributing beyond current partners or participants

<table>
<thead>
<tr>
<th>Product</th>
<th>Audience/User</th>
<th>Status</th>
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</table>
| Photovoice© Exhibit                    | Interested public, art advocates                                              | Developed, field-tested, available for use by partners, BCBS and others.  

*In 2011, we will develop an outreach plan for getting the Photovoice© exhibit more available to partners and others. A "how to" guide for showing the exhibit, easy to ship and hang, pre-packaged materials for hosting community forum. Consider options for virtual exhibit as well.*

| Train the Trainer Materials            | Nurses, WIC staff, community health education workers, family health mentors, nutrition education assistants, supervisors of community health agencies with staff training responsibilities | Workshop materials in hardcopy format are fully developed and field-tested and currently exist as a binder of materials. The binder was used as the curriculum for the workshops delivered during the three years of the grant.  

*With additional funding, these materials could be re formatted and/or incorporated into a web-based learning module as a successful model of best practices implementation in reducing children’s exposure to pesticides.*

<table>
<thead>
<tr>
<th><a href="http://www.localfoods.umn.edu">www.localfoods.umn.edu</a></th>
<th>Farmers, customers, interested public, researchers</th>
<th>Developed and continued improvement and maintenance planned.</th>
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<tr>
<td>On-line photo exhibit</td>
<td>Interested public</td>
<td>Developed, available for use by partners, BCBS and others.</td>
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</table>
| Affective Messages                     | WIC counselors and nutrition education assistants and their clientele         | Development and production of products completed in implementation phase.  

*With additional funding in 2011, training and delivery of these messages and handouts will be implemented.*

| Collaboration with EFANS – Food Systems Initiative Small Farms Program | Local food producers, extension educators                                      | Sustaining this effort in 2011 requires additional investment in personnel and in program delivery in NW MN.  

*Program topics include the following: High tunnel production, bee keeping, farmers market management, Pasture weed management, etc. See descriptions in Appendix C.*


E. Leveraging Resources

**1.** What funds has the project successfully leveraged to date that augment activities as part of the Growing Up Healthy: Kids and Communities initiative? Please do not include outstanding requests.

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Total Amount Received</th>
<th>Year(s) Received and Used</th>
<th>How Funds Used</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

All match shows as in-kind below.

For each source of funds please briefly list:
- **Funding Source:**
- **Total amount received that augmented GUH activities:**
- **Year(s) received and used to augment GUH activities:**
- **How funds used to augment GUH activities:**

**2.** What inkind resources has the project successfully leveraged to date that augment activities as part of the Growing Up Healthy: Kids and Communities initiative? Please do not include outstanding requests.

**NW RSDP In-Kind**
- **a.** Board members on project team, attending meetings hosted by BCBS and
- **b.** Source – U of M
- **c.** 2008, 2009 and 2010
- **d.** Citizen board members provide guidance, connection to community and oversight.

**Farm to Cafeteria Workshop**
- **a.** Organized and hosted a farm to cafeteria workshop in McIntosh in March 2010.
- **b.** Sources of funds: RSDP SARE grant, MISA funding through Risk Management and IATP funding through MDH contract.
- **c.** All resources available and used in 2010
- **d.** This conference was instrumental in creating interest in farm to school, and several schools have programs in place, providing fresh, pesticide-free food through school lunch and snacks.

**Organic High Tunnel Research**
- **a.** Research to establish knowledge base and demonstration of fruit and berries in organic high tunnel.
- **b.** Source of fund: NW RSDP (26,000) and Northwest Minnesota Foundation (25,000)
- **c.** Resources invested in 2009, 2010, 2011
- **d.** This directly serves the producers who grow fresh produce for the region.

**Farmer Mentor Program:**
- **a.** Extension and NW RSDP support for Jim Stordahl’s
- **b.** These sources leverage $24,000 to support GUH activities.
- **c.** Extension: $8000 in 2010, additional $8k in 2011; NW RSDP support for position in 2011 - $8400
- **d.** Organic farmer mentoring program to increase pesticide free food

For each inkind resource briefly list:
- **Resource contributed:**
- **Source:**
- **Year(s) received and used to augment GUH activities:**
- **How resource used to augment GUH activities:**
F. Cross-Cutting Outcome Data

Growing Up Healthy in the Red River Valley addressed two outcomes checked below:

Housing
Increase in the number of new housing units that are safe, healthy, and affordable.
Increase in the number of renovated family housing units that are safe, healthy, and affordable.

Environment
√ Decrease in the number and percent of children exposed to asthma triggers, volatile organic compounds, toxic metals, other hazardous and toxic substances, and/or unsafe physical conditions in their homes/apartments, facilities, neighborhoods, and/or communities.

Increase in the number and percent of children who live, learn, and play in settings (e.g., homes/apartments, facilities, neighborhoods, communities) that are safe and healthy.

Diet and Nutrition
√ Increase in the number and percent of children in targeted groups and settings who have access to and/or consume a healthy, safe and nutritional diet.

Policy and Systems Change
Changes in group/organizational policies, norms, expectations, or practices related to housing, environment and/or child development affecting child health.
Changes in public policy related to housing, environment, and/or child development affecting child health.

Child Development
Increase in the number and percent of children attending pre-school and school regularly.
Increase in the number and percent of children who are kindergarten ready.

Summary of Results

Growing up Healthy in the Red River Valley has focused efforts on:
1) decreasing exposure to pesticides through training and raising awareness about the issue
2) making healthy, locally grown and pesticide-free food more accessible in the region.
   The reach and impact of these activities is summarized in Sections B and D of this report. Evaluation report will be provided in December.

During the implementation phase, the majority of investment was in developing and delivering the training program. In the sustaining phase, the majority of the investment will be applied to increasing access to healthy foods, by delivering training and support to existing and beginning farmers. Much of the in-kind support to the project is tied to this activity.
H. Issues and Challenges:

List and describe the major issues and challenges the project has encountered during the 3 year implementation period and how they have been addressed.

People’s prior perspectives influence what they see in the Photovoice exhibit. Many of the people who participate in community forums are already concerned about children’s exposure and impact on development; the challenge of “preaching to the choir.”

Training sessions have had to compete with other priorities on the plates of public health nurses, most notably flood recovery and mold issues in the spring and H1N1 in the fall of 2009. Remaining flexible and willing to provide the training seemed to be the only way to address this challenge. Participants of the trainings have varied work schedules and many work on the road and in homes in the community and were not available for telephone interviews. Only one participant returned the requested training log form describing their activities post-workshop. Supervisors were available for interviews and anecdotally relayed their perceptions of the outcomes, impact and reach of the training for their staff.

In general the issue of reducing pesticide exposure has to compete with issues that are perceived to be more urgent. For families, the day-to-day issues of making ends meet, finding and keeping adequate housing, and meeting the challenges of raising young children are front and center in the attention of mothers.

Farmers are often defensive of their use of pesticides. There’s a lot of sensitivity to calling out agricultural practices as being harmful to human health. There’s a resistance to doing that in the region. People address the issue but there’s a lot of reluctance to talking about it, publishing it, and hosting conversations about it.

Young families are mobile. It was a challenge to keep busy moms involved in the project. In two of the populations, it was difficult to find the women who participated after the first year. When BCBS and TPT featured this project in the documentary, we were able to reconnect with the women and kids who were involved in the Photovoice project for the filming.

The economic situation overall is a challenge to making good choices about food. Local food producers are subject to economic swings. However, while the recession has created challenges for the families, it’s also been an impetus to think more about what they can do for themselves and what opportunities can arise in this kind of situation.
I. Sustaining the Project

Please indicate if you or your partners plan to sustain all or part of the project and how it will be done.

We’d like to continue all three activities in the coming year, focusing our efforts on utilizing the Food Systems Initiative at UM Extension as a key partner for presence and delivery.

For the community engagement and raising awareness activity, we’ll provide training and printed materials for the affective messaging handouts. Additionally we’ll create an outreach plan to helping community groups host the exhibit and forum.

Further training of nutrition education assistants will be included as requested in the coming year. Additionally, we’ll create a web-page with links to resources included in the curriculum.

To increase access to local, healthy food, we’ll strengthen and expand the offerings of the small farm program in northwestern Minnesota. Our current commitments provide for Jim Stordahl to spend .20 FTE supporting local producers. The additional investment will allow other educators to deliver programming in the region, ranging from local food production and marketing to farm to school programming.

Budget for Sustaining Project:

Sources:

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<th>BCBS funds</th>
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<td>Extension</td>
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Anticipated expenditures through the end of grant period

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Other Information

Listing of websites:

http://www.regionalpartnerships.umn.edu/index.pl?id=3553
http://localfoods.umn.edu
http://redriverkids.blogspot.com/
http://anishinaabecalendar.org/?page_id=290
Budget Page

Implementation Grant:
Preliminary Financial Data included below.
Full report to be provided after close of grant period.

Sources:
- BCBS Growing up Healthy grant $150,000
- In-kind contributions:
  - NW RSDP 13,000
  - Extension 8,000
  - NWMF 25,000

Anticipated expenditures through the end of grant period

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Appendices

I. Keeping Children Safe from Pesticides Affective Messaging

II. Small Farm Program Example Topics

III. Anishinaabe Center Garden Mentor Project Report

IV. Universal Precautions for Pesticide Use
Keeping Children Safe from Pesticides Affective Messaging

Description of Materials:
The strategies and materials differ from traditional educational approaches. The affective message strategies in the materials highlight emotion-based benefits of protecting children and families from pesticide exposure in addition to the logical, rational benefits of taking action. Six key topics are highlighted 1) Pesticide-Free Zone, Should We Care? 2) No Spray Zone 3) Hey, That’s My Skin! 4) I’m Eating That! 5) Pesticide Free, Is it Possible? and 6) Children and Pesticide Safety on the Farm.

Each key topic has two components. The first component is a counseling script with a discussion format known as “Open, Dig, Connect, and Act.” Each counseling script is accompanied by a handout that features on one side a picture with a message and on the other side a story or testimonial. The graphics for the handouts will come mainly from photos taken from the Photovoice© activity in the Growing up Healthy in the Red River Valley project. Some of the testimonials will also come from the stories that accompany the photographs.

Delivery Mechanism
Initially, nutrition educators in the Red River Valley for the Women, Infants and Children Program (WIC) and the Simply Good Eating Program (SNAP-ed) will be trained on delivering the materials to their clients. The materials can be used in several ways 1) the scripts can used one-on-one or in group settings with WIC, SNAP recipients, or visiting nurse patients, 2) during health fairs, county fairs, or other venues as handouts, 3) as handouts in the schools, clinics, and other public places, and 4) other public health events. Handouts and scripts will also be featured on the University of Minnesota Sustainable Development Partnerships, University of Minnesota Extension, North Dakota State University Extension Service, and other related websites.

Training:
A webinar will be conducted with Extension nutrition educators and WIC employees. On-site seminars can also be conducted if requested.

Evaluation:
The trained nutrition educators and other users/educators will be asked to track their use of the materials. We can do this through one-on-one interviews and brief written surveys to ask them how often they used the materials and what were the perceived reactions of the clients when they used the materials.

Budget:
Printing:
6 double-sided full color handouts (1000 of each) = $1000.00
6 double sided black and white scripts (100 of each) = $210.00

On-Site Training (travel and refreshments) = $1000.00
Small Farm Program Example Topics

**Dairy Days:** Dairy farms add more revenue/acre to the local economy than most other farm enterprises. This program is focused on keeping small family dairy farms viable and profitable. In collaboration with Regional Educators, this program provides a day-long educational event to dairy farmers in Northwest Minnesota.

**Cow-Calf Days:** Beef production in northwest Minnesota adds nearly $30 million annually to the local economy. Events such as CC Days help keep our area farmer/ranchers maximize the profit from their herds, the vast majority of which are small family farms, often as a part-time enterprise.

**Local Foods:** The average household spends about $600 each month on groceries – most of which leaves our communities. Purchasing locally grown foods provides fresh, more nutritious foods while keeping food dollars in the community. Each year, I coordinate efforts with area farmers to provide area residents with greater amounts of locally produced foods, most free of pesticides.

**Robotic Milking:** Although robotic milking may foster images of “The Jetsons” and sound like something common to a huge factory farm, these futuristic machines are now a reality on three northwest Minnesota family farms. Indeed, these space-age machines enable smaller family farms (60+ cows) to stay in business by reducing the demanding work load.

**Backyard Beekeeping:** Every third bite of our food comes from a crop pollinated by a honeybee, especially market-garden crops. Honeybees are vitally important to our food supply and our ecosystem. Veteran beekeeper Bill Henney and I offer a learning circle for area small-scale beekeepers.

**Bio-control of Noxious Weeds:** The goal of this project is to reduce pesticide use in non-crop, often environmentally sensitive areas. Working with the Minnesota Department of Agriculture, we release biocontrol agents (small insects) at several locations in northwest Minnesota to control leafy spurge and spotted knapweed. As the insect populations increase in these sites, we create new release sites and insectaries to further disseminate these agents on chronically infected areas reducing use pesticide use. Most of the pesticides used in an attempt to control these weeds have tendencies to contaminate groundwater.

**Colony Collapse Disorder:** is a phenomenon in which worker honeybees suddenly disappear from the colony. The causes are not fully understood, although it is believed to be related to pesticides, insect pests and/or diseases. Northwest Minnesota is home to numerous commercial beekeepers that are experiencing significant losses due to CCD. In this program, I inspect bee yards to validate hive losses, encourage crop producers reduce pesticide use, offer options to reduce exposure to pesticides by yard selection, and care of hives. Initial reports in 2010 suggest hive losses of up to 35%.

**Pasture Weed Management:** The objective of this program is to reduce pesticide use on common pasture weeds while preserving beneficial legumes with the use of a wick-roller applicator. Early results are encouraging with significant control of the target weeds while preserving the ever-important legumes in the forage mixture. Legumes supply “free” nitrogen from the atmosphere to the grasses eliminating the need to purchase commercial nitrogen derived from petroleum products. Traditional pesticide applications kill the beneficial legumes and inadvertently reduce pasture productivity by up to 50% while increasing pesticide applications by 100 fold.
2010 Organic Garden Mentor/Mentee Report:

- Each of the 28 family's will “adopt-a-family” and mentor that family with garden/local food information
- Expand Buying Club, Farmers Market and Barter System
- Hold 2-4 community wide workshops on local food topics
- Create simple PR materials to spread the word on our activities, such as a website, collage posters of activities, make ourselves visible at local events (Pine Point and Nay Tah Waush Pow Wow, Berry and Wild Rice Camps, Schools...)
- Have a friendly “Garden Art” competition (any medium)
- Provide financial support to 8 identified households that will produce food beyond their households needs to expand the opportunity to provide local food for White Earth communities.

The “Adopt a Family” style has been and still is a great success this year. Twenty-eight families eating and supporting local foods has turned into 52+ families. Each Mentor/Mentee family has their own unique relationship with these simple guidelines/goals: Meet once a week in a garden, share with each other about their local foods “encounters”. In addition to the weekly meetings, every Mentee family experienced the following: visits to local farms/developers, traditional gather/harvesting, cooking/recipe ideas, Stone Soupers Farmer/Barter Market, learned organic pesticide control (ie. companion gardening, various plant based homemade mixtures, pest barriers such as old panty hose or straw, etc.) viewed documentary’s about the food industry, accessed the website www.anishinaabecalendar.org.

Becca’s Mentor Report

Herman’s Seeds is a wonderful seed donation project. The program was named after Herman Warsh, a gardener who believed in saving heirloom seeds and helped to create the Seed Savers Heritage farm with the motto “One seed, one gift.” For a mere $10 for shipping and short description of need, projects are able to receive surplus seeds. Some of the Stone Soupers, the monthly bartering and gardening group in White Earth each donated a dollar each and received about 20 packets of seeds.

Some examples of success and challenges from growing the seeds: Boston Marrow squash rocks—so light and beautiful looking. Will try several of the packets next year—but the chickens liked the runner beans too much.

Strong up the runner beans in a circle and learned that they might like climbing planted in a row. The painted lady bean was more prolific though. Ate two ears of Bantam corn—didn’t get much more.

Loved the Italian Heirloom; tomato would grow again.
Each of the Mentors has expressed that 50%-99% of their food is locally grown, four of the Mentors have grown or bartered all of their food needs for the winter within the group! All of the Mentee’s have stated that they will continue to expand and share the knowledge they gained this year. It has become a life style change that they are excited to share with others. With the group of people becoming so large, we had to address communication issues. In addition, we wanted to share our activities with people who were not able to participate because of time, distance, etc. or wanted to start gardening projects in their own communities.

Earlier this year we launched the website—www.anishinaabecalendar.org with a Facebook link. The website was designed specifically for events on the White Earth Reservation. There is a local foods directory specific to the White Earth area, info about the Mentor/Mentee activities, Farmers Market locations, Natural Resource info, and other cultural events. With the Facebook link we are able to reach more people with news of what should be planted, what is being harvested, what is available with the buying club, reports from farm visits/tours, etc. To date we have over 230 people sharing information with one another! Examples are: uploading photos with step by step instructions on planting, harvesting, food processing, and preparing traditional foods; sharing info on organic food for sale or trade; sending out word that a crop is ready to harvest, etc.

Each Family has its own unique way of being involved with the local food system. We have people that initiated involvement with community wide seasonal camps on a professional level, to the single parent who has taken up co-gardening with a mentor. No matter what type of involvement, the enthusiasm has been breath taking! (A report from a Mentor is attached at the bottom of this report.)

The group “Stone Soupers” have been meeting regularly at least once a month as a whole, with many get togethers in-between. The buying club and barter system have been going strong and expanding as more people join in. In addition to the Stone Soup members produce, the group has direct connections with the Whole Foods Co-op in Wadena, members that live close to Natural Way Mill, and a new organic farm on the southern edge of the reservation. Orders are placed with the appropriate group member and deliveries are made at the monthly Stone Soup meeting.

A Mentored Family

Mentored Waubun family:

One single parent family has 3 children all under the age of nine years.

As a garden mentor I brought my family and raised bed supplies and starter plants given by the Anishinaabe Center. While my husband helped build the garden bed the Waubun mom and I loaded up free dirt from a neighbor and came back and got the bed filled.

The Waubun family was given some heirloom tomatoes starter plants and zucchini plants from Anishinaabe Center’s greenhouse and some Bantom Corn seed from Herman’s seeds. We talked about what square foot gardening is and how to go about it. Waubun mom was also given some planning garden grid sheets for her to map out her garden and some info on companion planting.

We all did a lot of hard work but had fun and also learned that her kids love pickles, while she loves chard. She hopes to build another box when she gets the hang of it for 2011. At the end of the growing season when I met with the family and asked if she needed help with the new box she said, “Nope, thank you, but you taught us very well, the kids are excited to build the new box and grow food they like!”
Four community wide seasonal camps have been held, and several family seasonal camps have also occurred. 100% of the “Adopted Families” attended at least one of the camps. Two community wide workshops were held one on using garden produce in an immune building elixir, and the second on building chicken tractors and how to care for your chickens when they move in. Many other “mini-workshops” were held via Facebook and word of mouth, examples are: (several) wild food gathering/preparing, nutrition, photography, seed and plant trade, how to prune, edible landscaping, best tools to have, etc.

The “Garden Art” competition has ranged from photography to yard landscaping, we hope to have everyone’s best piece posted on the website later this year. The “Garden Art” was a new idea and was well received, the only outcome was fun...however, plans are being tossed around to make it a little more competitive next year, such as getting involved with the local county fairs, photo contests, etc.

The eight families that have expanded their food production to provide food local food out in the White Earth Community are going strong. There have been many challenges this year from the wind and rain, but everyone did well. We were able to provide financial, technical, and labor assistance with 5 existing hoop houses as well as provide the materials for season extending ground hoops for all 8 of the families plus many of the other families interested in extending the growing season.

Starter plants and seeds were provided to the eight families and all of the families in the mentor program. Five of the families sold produce from their farms and Farmers Markets and the other 3 provided education, produce to the camps, shared with Mentee families that did not have garden space, and disabled or elderly people in the community. Raised beds and soil were also provided to the families.

Please visit the website www.anishinaabecalendar.org and click on the tab “organic gardens” to see photos of the events for this year. The tab “local food directory” includes the farms/producers that we have had the opportunity to visit this year. We hope to expand this list as time moves forward! The whole website is testimony to the activities that this group has been involved with.

Mentored Strawberry Lake area family

This young grandma has four children age teen to 23 with five children of their own all under the age of five.

She and her boyfriend were given several recycled wooden boxes to try different versions of raised bed gardening and given instruction on how to get started. Later she picked up some starter plants from Anishinaabe Center and picked several packets of seed to try—with a love for the squash.

The garden grew well, especially her potatoes and the Galeux d’Eysing squash did really well. The only challenge came when her boyfriend decided he wanted to end the relationship. The family split up and access to the garden for some of the family was denied.

Although the young grandma did not benefit from the garden, the boyfriend and grandchildren did. My family, and others who knew of the situation, helped this family out by sharing produce from other gardens.
My Family’s Garden: A Mentor’s Experience

My corn (from Herman’s Seed Saver project) got beat up a few too many times this summer and didn’t produce well...and it was pretty late. I ate two cobs last week LOL...my beans did great (took over the entire garden), but my peas didn’t do so well. There are still carrots, beets, onions and peppers left for me to pick. I have tomatoes still on the vine because just last week I finally broke my zucchini plant down so that it would quit covering them up. My zucchini did wonderfully. The squash and pumpkins I planted didn’t make it. I think I got bad plants, because they never even took off. I think I weeded my garden twice all summer. I will probably clean it out weekend after this coming so that it's ready for me next spring. I learned a lot from the new gardens as I shared what I knew with the families—as well as from the other Mentors—as we discussed the successes and challenges of everyone’s gardens. There is always room for improvement and it’s great to learn new and old ideas to eat great food!

By Neal Holtan, M.D., M.P.H., Marion Warwick, M.D., M.P.H., and Bruce Bomier, M.P.H.

♦ Best Practice 1
Read labels and follow directions, but understand the limitations. Pesticide labels are developed through extraordinary effort by the EPA and the chemical companies that produce pesticides. Information about health risks from the inert ingredients contained in pesticides is not required. Thus, in case of a significant acute exposure, the exposed person should bring the label to an emergency room for review by medical personnel. The label will place a pesticide in one of 3 categories: “danger,” “warning,” or “caution.” The word “danger,” often associated with the word “poison,” is printed in red with a skull and crossbones, indicating that the compound is so highly toxic that ingesting as little as a teaspoon can cause death. “Warning” indicates that a moderately toxic compound can still be fatal or cause significant skin irritation or eye damage. “Caution” means that a larger amount, typically, an ounce to a pint, ingested orally can be fatal. These categories obviously relate to accidental ingestion and not to chronic exposure.

♦ Best Practice 2
Use protective clothing and equipment. Stay physically separated from pesticides by using barriers, clothing, goggles, respirators, and other protective equipment. Prevent exposure to skin, lungs, eyes, nose, and mouth by wearing gloves and protective clothing.

♦ Best Practice 3
Be prepared for the unexpected and reduce the chance of exposure. Be vigilant in order to prevent accidents while using pesticides. Assess each situation, anticipate unexpected problems, and think about exposures that occur at lower levels than were previously considered safe. For example, use nozzles that accommodate wind, evaporation, specific gravity, and plant adhesion. Properly calibrate droplet size and pressure in order to avoid overspray. Also, clear the area to be treated of other humans and animals. Do not let young children or pets come in contact with pesticides or inadvertently transport even small amounts into the home.

♦ Best Practice 4
Avoid all possible routes of ingestion. Never eat, drink, or use tobacco products when mixing, loading, or applying pesticides. Protect the mouth from contamination. Wash hands frequently, as hand-to-mouth contact is the most common source of ingestion.

♦ Best Practice 5
Use proper clean-up methods. When the job is over, wash and decontaminate equipment (including safety equipment) quickly and thoroughly at a location as far away from other people as possible. Never launder pesticide-contaminated clothing with general laundry; wash contaminated clothing in a separate facility if at all possible. Most pesticide products are water-soluble, and a good washing with soap and water in an isolated clean-up area works for equipment, clothing, and people.
♦ Best Practice 6
Control dispersion of pesticides and avoid exposing children and pregnant women. Store pesticides in dry, secure containers in areas that are not accessible to children. Follow recommended disposal and clean-up procedures. Do not burn pesticide containers. Be watchful about pesticide drift caused by wind or other environmental factors. And always be aware that children and pregnant women are at greater risk of harm from low-dose pesticide exposures than others in the population.

♦ Best Practice 7
Don’t bend the rules. Those who do not follow best practices regarding pesticide safety increasingly run the risk of being reported to regulatory authorities or the criminal justice system. Hikers, bikers, fishermen, and hunters sometimes report people who are not properly applying or storing pesticides. More and more people are moving into areas formerly populated only by farmers, foresters, and other rural residents and have less tolerance for pesticide misuse.

Conclusion
Rural residents place a high level of trust in their physicians’ advice about pesticide safety. Physicians with patients who use pesticides can easily and quickly make a difference by promoting universal precautions in handling them. In doing so, physicians not only will help prevent possible long-term adverse health effects among those patients but also can protect the health of their families, neighbors, and communities, as well as the environment. In addition, physicians can contribute tremendous public health and ecological benefits by persuading their patients who administer pesticides to follow responsible standards of care in their work.